
X. *On the Generic and Specific Characters of the Chrysanthemum Indicum of Linnæus, and of the Plants called Chinese Chrysanthemums.* By Joseph Sabine, Esq. F.R.S. F.L.S. &c.

Read March 18, 1823.

IN a former communication* to the Linnean Society, I endeavoured to establish the correctness of my opinion, that the plants now cultivated in our gardens under the name of Chinese Chrysanthemums, had been improperly referred to the *Chrysanthemum Indicum* of Linnæus. Since the paper alluded to was written, I have had opportunities of examining and comparing living specimens of what I consider the real *Chrysanthemum Indicum* with those of the Chinese Chrysanthemum ; which latter I now design to characterize as a distinct species under the name of *Chrysanthemum Sinense*.

Among several varieties of the Chinese Chrysanthemums recently imported by the Horticultural Society, are some in which the ligulate florets are only radial, or in the circumference, the disc being occupied with tubular florets ; these are consequently in a state more nearly resembling (if not entirely assimilating with) the natural type than any of the varieties in which the ligulate florets extend over the whole or nearly the whole surface of the disc, and which are considered as double flowers, those varieties previously known being all more or less of this latter description. On examination of the flowers of the new varieties above alluded

* Observations on the *Chrysanthemum Indicum* of Linnæus, vol. xiii. p. 561.

to, which by the gardeners are called semi-double, from their having, as is supposed, more radial florets than are strictly natural, I observed that the receptacles, as far as they were covered with the tubular florets, were destitute of paleæ, and that a few of the chaffy processes only were observable in the circumference of the flowers where the ligulate florets were placed. In the plants with double flowers, where the ligulate florets extend over the whole disc, paleæ were uniformly observable in greater or less quantity; but whenever any of the flowers of the latter plants from particular causes had lost the full double appearance and showed a portion of the disc covered with tubular florets, in those cases paleæ ceased to be formed on that portion of the disc covered with the tubular florets. I therefore conclude, that the production of the paleæ on the disc, when the tubular are changed into ligulate florets, is the consequence of the luxuriance of the flowers; the rudiments of the paleæ which exist on the disc in the flower in its natural state are elongated into chaffy processes, by the same operating cause which converts the tubular into ligulate florets.

As the existence of paleæ on the receptacle of the flower was the only ground on which the Chinese *Chrysanthemums* had been referred to the genus *Anthemis*, I presume that the facts above stated will be considered as conclusive against such reference, and that consequently the original application by the English botanists of the Chinese *Chrysanthemum* to the genus *Chrysanthemum* is correct.

Soon after I had examined the semi-double or single flowers of the Chinese *Chrysanthemums*, a plant which had been imported by Mr. Samuel Brookes, of Ball's Pond, from China, and which he had presented to the Horticultural Society, came into blossom in the Society's garden. On this plant it was with the greatest satisfaction I observed the flower conforming exactly with

with the characters given by Linnæus to his *Chrysanthemum Indicum*, and agreeing not only with the descriptions of the authors he had referred to, but with the specimens of the different Herbaria in which the plant referred to by Linnæus as his *C. Indicum* was to be formed. The whole appearance of it is so decidedly different from that of any of the Chinese Chrysanthemums, that even before it blossomed, doubts of their specific identity might have been entertained, without much examination; but the blossoms are so different, that in its flowering state, they could not possibly be taken for the same.

The following characters and descriptions with reference to the different works in which the two species are treated of, is the result of the comparison instituted.

CHRYSANTHEMUM INDICUM.

C. foliis flaccidis petiolatis pinnatifidis crebrè dentatis; supremis integerrimis, radio calyce paulo longiore, caule fruticoso.

Matricaria Japonica flore minore, &c. Breyn. Prod. ii. p. 66.

Tsjetti-pu. Rheede Hort. Mal. vol. x. p. 87. tab. 44.

Matricaria Madraspatana, &c. Mus. Pet. p. 76. no. 786.

Chrysanthemum Madraspatanum, &c. Pluk. Alm. p. 101. tab. 160. fig. 6.

Matricaria Sinensis, minore flore, &c. Pluk. Amalth. p. 142. tab. 430. fig. 3.

Matricaria Indica, &c. Moris. Hist. vol. iii. p. 33.

Matricaria Sinensis, &c. Vaillant Act. 1720. p. 285.

Matricaria Zeylanica hortensis, &c. Raii Supp. p. 224.

Matricaria flore pleno magno. Herm. Mus. Zeylan. p. 33. Burm. Thes. Zeylan. p. 153.

Matricaria Zeylanica hortensis, &c. Linn. Flor. Zeylan. p. 198. no. 421.

Matricaria Sinensis. Rumph. Amboin. vol. v. p. 259. tab. 91. fig. 1.
Chrysan-

Chrysanthemum Indicum. Linn. *Sp. Pl.* vol. ii. p. 889.—*ed.* 2. vol. ii. p. 1253. Persoon *Syn.* vol. ii. p. 461: Willd. *Sp. Pl.* vol. iii. p. 2147. Sabine in *Trans. Hort. Soc.* vol. iv. p. 326. cum figuris.

Habitat in Chinâ.

The plant is upright, of more humble stature than the Chinese *Chrysanthemums*, with slender and generally more numerous branches, the whole foliage being of a pale green. The leaves are small, of thin and soft texture, with very frequent and acute denticulations; the uppermost leaves quite entire. In the flowers the ray is very little longer than the calyx, and the colours of the ligulate florets in variation change but little from yellow, which appears to be their natural colour.

CHRYSANTHEMUM SINENSE.

C. foliis coriaceis petiolatis sinuato-pinnatifidis dentatis glaucescentibus, radio longissimo, caule fruticoso.

Matricaria Japonica maxima, &c. Breyn. *Prod.* ii. p. 66.

Matricaria Japonica maxima flore roseo, &c. Pluk. *Alm.* p. 243.

Matricaria Japonica maxima flore multiplici flavescente, Shamouty Malabarorum. Pluk. *Amalth.* p. 142?

Matricaria, &c. Kämpfer *Amœn. Exot.* pp. 875—877.

Chrysanthemum Indicum. Thunb. *Flora Jap.* p. 320.

Anthemis grandiflora. Ramat. *Journ. d'Hist. Nat.* vol. ii. p. 233.

Chrysanthemum Indicum. Loureiro *Flora Cochinchin.* p. 499.

—*edit.* 2. à Willd. vol. ii. p. 610. *Bot. Mag.* 327.—2042.

Anthemis Artemisiæfolia. Willd. *Nov. Act. Soc. Nat. Scient.*

Berol. vol. iii. p. 431.—*Sp. Pl.* vol. iii. p. 2184.—*Enum.*

vol. ii. p. 911.

Anthemis stipulacea. Mœnch. *Supp. ad Meth. Plant.* p. 258.

Chrysanthemum Indicum purpureum. Pers. *Syn.* vol. ii. p. 461.

Chrysanthemum Indicum. *Hortus Kew. edit. 2. vol. v. p. 95.*
Botanical Register, 4.—455.—616.

Chinese *Chrysanthemum.* *Sabine in Trans. Hortic. Soc. vol. iv.*
p. 326.—vol. v. p. 149.—in Trans. Linn. Soc. vol. xiii. p. 561.

Habitat incultum in Japonia (*Kæmpfer, Loureiro*); cultum (multis varietatibus) in hortis Sinarum atque Japoniæ.

The branches are usually few, robust, and grow somewhat diffusely; the foliage is dark. The leaves are large, firm, and rather obtusely toothed, with distant denticulations, the uppermost leaves toothed like the rest. The ray of the flowers is equal to or larger than the diameter of the disc, and is subject to vary with the greatest diversity of colours.

The varieties of the *Chrysanthemum Sinense* are most numerous in the gardens of the Chinese, and cultivated with the greatest art and attention. They have lately become objects of much attraction to the British gardener. The first of these was introduced from France in 1790, having been brought from China to Marseilles in 1789. Between 1798 and 1808, eight new varieties had been imported from China, one by Mr. Evans of Stepney, the other seven by Sir Abraham Hume. To these nine Chinese varieties, a tenth raised in England was added. These remained without further accession till 1816: between that year and the present the number has been increased by the addition of seventeen new ones, one introduced by Mr. Palmer of Bromley, two by Mr. Brookes of Ball's Pond; and twelve by the Horticultural Society; of the remaining two, the origin of one cannot be traced, and the other was produced in England from one of the older varieties.

I am aware that an objection may be urged to the specific name I have applied to these plants, on the ground of their being natives of Japan, and only known in China in the gardens.

But

But in reply to it, I should observe, that they were originally obtained from China, and we know it is in that country that they have been brought to their present state of beauty and perfection: that for these reasons they are now known all over Europe as the *Chinese Chrysanthemums*; and that, as they have hitherto been confounded with the *C. Indicum*, it is very desirable they should be distinguished by an appellation well opposed to that of the other species.